

who have used this system of notation in other branches of their education may find it an assistance. In conclusion, the book may be recommended to anybody who practises navigation and wishes to keep up to date.

### OUR BOOK SHELF.

*Birds in their Seasons.* By J. A. Owen. Pp. vi+145; plates. (London: G. Routledge and Sons, Ltd., 1904.) Price 2s. 6d. net.

COMPLETE originality in mode of treatment, perfection in literary style, absolute fidelity to nature in the illustrations, coupled with immaculate accuracy in regard to nomenclature and other technical matters, would appear to be the only possible justifications for adding a new one to the long list of popular works on British birds. If it be asked whether the volume before us fulfils these conditions, there will be no great difficulty in framing a reply. In the first place, the mode of treatment is by no means original; while the following sentence from p. 53, "When talking to Lady Farren, of Bealings House, Suffolk, she told me that her family had had remarkable intimacies with wild birds," can scarcely be regarded either as a sample of elegance in diction or of accuracy in grammar. As specimens of what illustrations, so far as regards colour, ought not to be, we may cite the figure of the bee-eater in the plate facing p. 16, and that of the kingfisher on the one opposite p. 32. As instances of technical inaccuracy, for which there is no excuse, we may quote the following (among other) misspellings of scientific names, viz., (p. 20) *Matacilla* for *Motacilla*, (p. 29) *Musicapa* for *Muscicapa*, (p. 54) *Cocothraustes* for *Coccothraustes*, (p. 104) *Dafila* for *Dafila*, and (p. 129) *Acanthus* for *Acanthis*, the latter error being the more inexcusable from the fact that the name is correctly spelt on an earlier page. If further reference to inaccuracies be required, we may contrast the statement on p. 140, to the effect that in the index the various species are assigned to their respective orders and families, with the index itself, where in many cases the subfamily, in place of the family, is given.

If cheapness and (to the uninitiated) attractive illustrations were the sole qualifications for a good bird-book, the present volume might perhaps be worthy of commendation; as it is, naturalists at any rate still consider accuracy a *sine qua non* in works of this nature, while the British public will, we venture to think, demand something strikingly original before it accords extensive patronage to a new history of British Birds.

R. L.

*The Cultivation of Man.* By C. A. Witchell. Pp. xv+168. (London: W. Stewart, 1904.) Price 3s. 6d.

THE author of this book is very much in earnest. He condemns modern civilisation in strong terms for its many vices, especially for its worship of money and the mammonite marriages that result from it, and urges that men should apply to their own species the methods of the breeder of cattle. He recommends polygamy, apparently in all seriousness, and not as a mere counsel of perfection. It would, of course, destroy the family, but to this Mr. Witchell has no objection. He would have the child that is born "with every sign of some inherent disease of a serious character painlessly destroyed." Certainly he speaks out fearlessly, and that is no small merit. But it is to be regretted that he did not study his

subject more before writing. "Natural selection," he says, "is sometimes operative, chiefly among the poor." Considering that in England nearly fifty per cent. of the population die before the average age of marriage, this is a wonderful understatement. If we bear the facts in mind, we can hardly agree with Mr. Witchell that the business man is "the surviving type," i.e. apparently the type that is to survive to the exclusion of others. Business men are not a separate species. There is a continual upward movement of able men from the great underlying social stratum, and from this stratum directly or indirectly our successful men, as we call them, have emerged. In the underlying *couche sociale* there is but little accumulation of capital and comparatively little marrying for money. As to style, Mr. Witchell uses his terms vaguely. We hear of the cultivation of the young (i.e. by education), and of cultivation by marriage (i.e. by selection). But in spite of its defects the book is, much of it, interesting. It dwells upon things which seem to be entirely unknown to Royal Commissions on degeneracy, and to the many people who write letters to the papers and articles in the magazines on the subject.

*Richard Meyer's Jahrbuch der Chemie* for 1903. Pp. xii+600. (Brunswick: Vieweg und Sohn, 1904.) Price 15 marks.

THE year-book for 1902 has already been reviewed in these pages, and what was then stated applies with little modification to the new volume. Meyer's year-book presents an excellent, though necessarily brief, *résumé* of the year's researches in pure and applied chemistry. Possibly in other hands a slightly different selection might be made, and the weight of emphasis otherwise distributed, but in the rather wide range of subjects which have to be dealt with the question of choice must naturally vary with the taste of the individual reviewer.

Although, as was previously remarked, the small proportion of contributions of English authors does not accurately represent the relative strength of English chemistry either in quantity or quality, it is only too true that our output in chemical research and chemical literature is below what it should be. That this is due to lack of interest or poverty of ideas no one could admit, but it is to be attributed to the want of proper facilities in the way of public encouragement and State assistance.

Meyer's year-book has now reached its thirteenth year, and its success, which is assured, must be placed to the credit of its excellent staff of reviewers.

Perhaps its one shortcoming, if one may so express it, is that it is so long in coming, and many of the researches which are catalogued have assumed a new phase before the year-book appears.

J. B. C.

*Astronomischer Jahresbericht.* By Walter F. Wislicenus. Vol. v. Containing the Literature of the Year 1903. Pp. xxxiv+660. (Berlin: George Reimer, 1904.) Price 20 marks.

It was thought that the publication of the volumes on astronomy, a part of the "International Catalogue of Scientific Literature," might affect and possibly put an end to this most useful and valuable German publication, but the appearance of this, the fifth yearly issue, renders such an idea untenable. The volume before us is full of vitality and vigour, and the compiler and his co-workers are to be congratulated both on the high standard they maintain throughout such a laborious task and on the great value of the publication to all astronomical workers. To have not only references, but brief summaries of the contents of all, or practically all, astronomical literature published

during the past year is a real help to the astronomical investigator, and saves him much time and labour. In spite of the mass of material that is embodied in the work, the volume is, according to pages, only a trifle larger than its immediate predecessor, and somewhat smaller than vol. iii. As a matter of interest, it may be stated that the number of references in the present and the two preceding volumes are 2582 for vol. v., 2411 for vol. iv., and 2513 for vol. iii.

In conclusion, the statement made with regard to the earlier volumes, namely, that they should be found in every astronomical library and observatory, may be repeated in the present case. W. J. S. L.

### LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

#### The Forest-pig of Central Africa.

I HAVE seen Mr. Oldfield Thomas's interesting letter in your issue of October 13 relative to the remarkable forest-pig (which he has named *Hylochoerus meinertzhageni*). With regard to the discovery of this remarkable beast, there are perhaps other names which should be associated with it as well as those of the late Sir Henry M. Stanley and myself. No mention of this forest-pig appears in Sir Henry Stanley's published works, but in conversation with myself and others he frequently told us that, in addition to hearing of a "donkey-like animal with large ears" (which afterwards turned out to be the okapi), he once saw a huge black pig, and he had reason to believe that a strange new species or genus of pig inhabited that portion of the Congo Forest near the Semliki River. I heard and transmitted similar stories told me by the natives of that forest; but even more detailed accounts were collected and sent later on by the late W. G. Doggett, who, to the great loss of zoological collecting in Africa, was drowned in the River Kagera in the early part of the present year. But I think the first definite accounts of this pig (or at any rate of *Hylochoerus meinertzhageni*) were transmitted by Mr. C. W. Hobley, C.M.G., a sub-commissioner of the East Africa Protectorate, who has recently been acting as Commissioner after the departure of Sir Charles Eliot. Mr. Hobley sent a drawing of the skull and a description of the creature from imperfect specimens he had seen on the slopes of Mount Kenia. Unfortunately his letters were delayed in transmission, so far as their reaching the Zoological Society was concerned. Mr. Hobley is now in England, and it is to be hoped that he will furnish the Zoological Society in detail with the extremely interesting particulars he has given me in conversation regarding this remarkable animal. I would remind your readers that Mr. Hobley (who as regards length of service is almost the senior British official connected with British East Africa) made the important discovery last year of marine organisms in the Victoria Nyanza.

So far, the native stories of the okapi and the big forest-pig have turned out to be true. It only remains to complete the trilogy by the discovery of a third mysterious animal, also alluded to in conversation, if not in writing, by Stanley, and mentioned by Doggett and myself. This, so far as native accounts can be crystallised into a definition, would seem to be some large tragelaphine antelope resembling the nilghai in appearance, with short, twisted horns. A horn or a pair of horns attributed to this animal was, I believe, brought home by a member of Stanley's expedition, and is possibly in the British Museum. It was seen by Dr. P. L. Sclater, and attributed by him to an abnormally developed cow eland; but so far as I could learn from my own researches and those of Doggett, the natives of the Semliki Forest were careful to differentiate this creature from either the forest eland or the bongo. Their accounts of it certainly coincide to a great extent with their stories of the okapi, though they insisted on the difference between

the two animals. Perhaps there is as much truth in their stories of this large antelope with small twisted horns as there has been shown to be in connection with the okapi and the forest-pig. H. H. JOHNSTON.

#### Mendel's Law: a Crucial Experiment.

I SEE from the published account of a recent discussion at the Cambridge meeting of the British Association that the facts of Mendelian segregation are still disputed by the biometric school of evolutionists. I venture, therefore, to submit to your readers the result of an experiment carried out at the Royal Botanic Gardens, Peradeniya, which, in my opinion, proves conclusively that in a particular cross-bred form a particular pair of characters did become segregated in equal numbers of germ cells, both male and female. The characters in question were:—the appearance and absence respectively of a yellow coloration in the endosperm of grains of Indian corn (*Zea Mays*). These characters are discontinuous in the strain examined. Among about 100,000 grains which passed under my notice, I saw only two which were partly yellow and partly white; these were counted as yellow, being presumably heterozygotes.

Some of my specimens were exhibited by Mr. Bateson at the recent meeting of the British Association, but I can now add the results of a further generation.

The facts are represented in the following scheme, in which the absence of the yellow pigment is expressed by the term "white."

- I.  $\left\{ \begin{array}{l} (1) \text{ White flint corn;} \\ \text{extracted recessive} \\ \text{from a mongrel strain} \end{array} \right\} \times \delta \left\{ \begin{array}{l} (2) \text{ Yellow flint corn;} \\ \text{of the same mongrel} \\ \text{strain as (1)} \end{array} \right\}$
- II.  $\left\{ \begin{array}{l} (3) \text{ Yellow} \\ \text{grains} \end{array} \right\} \times \delta \left\{ \begin{array}{l} (4) \text{ Offspring of (1);} \\ \text{self-pollinated white} \end{array} \right\}$
- III. (5) 1963 yellow (49.76 per cent.) + (6) 1982 white.

The plants arising from these grains, both white and yellow, were used as seed parents in the next generation, the pollen parent being "Boone County White" dent corn. There resulted:—(a) Offspring of white grains—some 30,000 white grains and 27 yellow grains (0.09 per cent.); the latter were accounted for by the escape of "yellow" pollen. (b) Offspring of yellow grains—generation iv.:—

- IV. 26,792 yellow (50.03 per cent.) + 26,751 white.

- V.  $\left\{ \begin{array}{l} \text{Self-} \\ \text{pollinated} \end{array} \right\}$   
16,582 yellow + 5681 white (25.5 per cent.)

The plants arising from the above yellow grains (generation iv.) were also used as pollen parents for a cross in which the seed parents were the offspring of "Boone County White" crossed with a strain of extracted recessives from the original mongrel flint corn. There resulted:—

- 2507 yellow (49.2 per cent.) + 2593 white.

I would direct particular attention to the following points:—

(1) That a perfect Mendelian result was obtained among the offspring of an impure race.

(2) Lest it should be objected that possibly the ancestry of this mongrel strain included equal numbers of yellow and white individuals, a pure recessive strain ("Boone County White," imported from U.S.A.) was introduced into the pedigree, so that the next generation (iv.) possessed at least three times as many white ancestors as yellow. On self-pollinating the offspring of yellow grains, the Mendelian proportion 3 yellow to 1 white was obtained.

(3) In two generations the female germ cells borne upon the heterozygotes were tested by crossing with the recessive form. In each case half of the germ cells were found to